Rocky Flats Environmental Technology Site

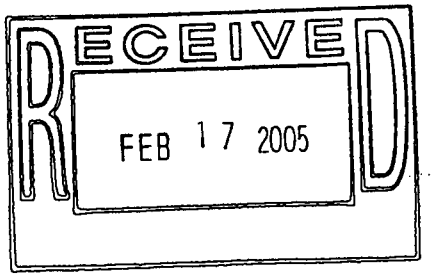
PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING B771/774, Exterior

REVISION 2

April 28, 2004

CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02



ADMIN RECORD

1/52

B771-A-000285

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 771/774, Exterior

REVISION 2

April 28, 2004

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ATTACHMENTS

ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSR	Pre-demolition survey report
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity

VOCs	Volatile organic compounds
WSRIC	Waste Stream and Residue Identification and Characterization

EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771/774 Exterior. Because this Type 3 area will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS include the exterior of Buildings 771 and 774, with the exception of the following areas: the original Building 774 structure (including Rooms 202, 203, and 210), the Annex, and a 380 ft^2 section of the east wall of Room 241, which will be packaged and disposed of as radioactive waste. Rooms 102 and 103 of Building 774, which are located six feet below the final proposed grade level, will remain *in-situ* and have been filled with a concrete aggregate.

The PDS encompassed both chemical and radiological characterization. The characterization was built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project.*

Based upon the results of this PDSR, the portions of the 771/774 Exterior included in this report meet the unrestricted release limits specified in the site Pre-Demolition Survey Plan. These portions of the 771/774 Exterior can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. To ensure that the facility remains free of contamination and PDS data remain valid, Level 2 isolation controls are established, however, the area will not be posted because personnel do not routinely access these areas. The integrity of the isolation controls shall be verified with radiological verification surveys upon completion of the demolition of contaminated structures located adjacent to the 771/774 exterior.

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1 INTRODUCTION

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771/774 Exterior (vertical surfaces). Because this Type 3 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). The results of this survey shall demonstrate that the 771/774 Exterior meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan prior to demolition. Building surfaces characterized as part of this PDS include the portions of the Exterior of Buildings 771 and 774 described in the data summaries (Attachments B, C, and D).

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is the Building 771/774 Exterior. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 3 facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for the Building 771/774 Exterior. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 771/774 Exterior PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of the Building 771/774 Exterior (vertical surfaces) that will be free-released and disposed of as sanitary waste or used as backfill per the requirements of the *RFETS, RFCA RSOP for Recycling Concrete*. The roof of Buildings 771/774 is to be included in a different report. The original Building 774 structure (including Rooms 202, 203, and 210), the Annex walls/roof, and a 380 ft^2 section of the east wall of Room 241 will be packaged and disposed of as radioactive waste. Rooms 102 and 103 of Building 774, which are located six feet below the final proposed grade level, will remain *in-situ* and have been filled with a concrete aggregate. A PDS will not be performed for any of these areas.

All areas that will packaged and disposed of as radioactive waste will be protected with fixative and verified to have removable levels less than 20 dpm per 100 cm^2 gross alpha. Contamination control measures to be used during demolition include water and fixative

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for dust suppression. In addition, demolition activities will be ceased when wind speeds exceed 15 mph. Close-in air sampling shall be used to ensure the safety of the worker and the public.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. The Building 771 Hazards Characterization was performed in June 2001 (Refer *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0). Based on the characterization results, radiological contamination was identified in Buildings 771 and 774, and the Building 771/774 was identified as a Type 3 facility. Therefore, a PDS was required before demolition of the facility.

The survey units that encompass most of the 771/774 Exterior (771067, 771069, and 771071) are classified as Class 3 based on their contamination potential, per Section 3.0 of the PDSP. This classification is based on the low contamination potential for the building exterior. The most likely sources of contamination of this area include the 1957 Building 771 fire, the 1969 Building 776 fire, and other miscellaneous airborne emission sources from the site. However, environmental sampling performed to date indicates that the fires did not spread detectable contamination into the surrounding soils. Therefore, contamination would not be expected on structural exteriors.

The original Building 774 structure (including Rooms 202, 203, and 210), the Annex walls/roof, and a 380 ft^2 section of the east wall of Room 241 will be packaged and disposed of as radioactive waste. Rooms 102 and 103 of Building 774, and the lower section of Room 241, which are located six feet below the final proposed grade level, will remain *in-situ*. Rooms 102 and 103 have been filled with a concrete aggregate. A PDS will not be performed for any of these areas.

This report documents the results of that PDS. The hazards characterization results and historical review (refer to Attachment F) were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. Characterization documentation is located in the Building 771 Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Building 771/774 Exterior was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon a review of the characterization data, historical and process knowledge, in-

process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to survey packages 771067, 771069, and 771071). A Survey Unit Overview Map is presented in Attachment A. Based on hazard characterization data and historical and process knowledge, transuranic isotopes are the primary contaminants of concern in Buildings 771/774. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 771 Characterization Project files.

The Building 771/774 Exterior survey unit packages was developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and media samples were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachments B, C, and D, *Radiological Data Summary and Survey Maps*.

Building 771 Exterior – (Survey Unit 771067)

The exterior Building 771 was classified as a Class 3 survey unit. The classification was based on the low potential for contamination. A total of 43 random TSA and RSA measurements, and 3 media samples were collected. Surface scans of 532 m^2 (43% of the total surface area) were also performed.

The Building 771 exterior walls, both below and above grade, are cast-in-place steel-reinforced concrete tied to the footings, columns, floors and roof.

Four media samples were originally taken on the exterior of the 771 building in December, 2002 (at the random TSA/RSA locations that were painted with non-original paint). These samples were analyzed as a batch shot. The result of this measurement exceeded the $DCGL_W$ of 100 dpm/100cm^2. Since the exact location of where the contamination came from could not be deduced from the batch shot, each location was re-sampled (on 6/30/03). One sample result exceeded 100 dpm/100 cm^2. This location was on the grating of the B771 dock, which was routinely used for load-out of radiological laundry garments. Because this area had been repainted on numerous occasions, and because grating cannot be adequately surveyed for alpha contamination (due to geometry constraints), the grating was removed and disposed of as radioactive waste. Because this area was removed from the survey unit, only 3 media sample results are reported.

In addition, one coupon samples was collected and analyzed on an alpha spectrometer to verify the presence of Polonium-210 and the absence of plutonium and americium at random survey location #11. Polonium-210 was suspected when an elevated reading (~

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170 dpm/100 cm^2) was observed on the corrugated metal during the survey effort. Polonium-210 was detected on the coupon sample. No plutonium or americium was detected.

Building 771 IDEC Exterior – (Survey Unit 771069)

The exterior surfaces of Building 771 IDEC were classified as a Class 3 survey unit. The classification was based on the low potential for contamination. The IDEC was constructed in 1987 to support a cooling system for B771, which never went on-line. The IDEC construction consists of a metal outer-wall covering sandwiched over insulation. The facility is steel I-beam construction with a metal roof over roof insulation.

A total of 19 random TSA and RSA measurements, and 3 media samples were collected. Surface scans of 275 m^2 (22% of total area) were also performed.

The three paint samples were collected on December 4, 2002, at the random TSA/RSA locations that were painted with a non-original coating. All results were less than the $DCGL_W$ of 100 dpm/100cm^2. In addition, seven coupon samples were collected and analyzed on an alpha spectrometer to verify the presence of Polonium-210 and the absence of plutonium and americium. Polonium-210 was suspected when elevated readings (~ 200 dpm/100 cm^2) were observed on the galvanized metal (flashing, and metal vent covers) during the scanning effort, and also at random survey locations 1 and 2. Polonium-210 was detected on all seven coupon samples. No plutonium or americium was detected.

One of the seven coupon samples was collected at TSA data point 771069PRP-N002. Because this result was verified analytically to be due to naturally-occurring activity (Po-210), the result was reported as zero.

Building 774 Exterior – (Survey Unit 771071)

The exterior surfaces of Room 241, 341, and 441 of Building 774 were classified as a Class 3 survey unit. The classification was based on the potential for contamination due to process history. This reinforced concrete structure, known as the "plenum building", was an add-on to the original Building 774 and was built circa 1972. A small section of the 241 east exterior wall (approximately 380 ft^2), is contaminated due to its proximity to the process waste underground storage tanks (USTs) and will be packaged and disposed of as radioactive waste (fixed alpha contamination ranging from 600 to 15,000 dpm/100 cm^2). The USTs were previously remediated. The remaining portions of Building 774 will be packaged and disposed of as radioactive waste.

A total of 15 random TSA and RSA measurements, and 3 media samples were collected. Surface scans of 155m^2 (17% of total surface area) were performed.

Three media samples were collected at random TSA/RSA locations that were painted with a non-original coating. A gamma-spectrometry batch shot was performed for the three samples. The result was less than the $DCGL_w$ of 100 dpm/100cm^2.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Based on a thorough review of historical and process knowledge, visual inspections, and personnel interviews, no additional chemical hazard sampling requirements were identified.

4.1 Asbestos

Building 771/774 Exterior

Asbestos containing building material is not present in/on the building 771 exterior (vertical surfaces).

4.2 Beryllium (Be)

The exterior of building 771 and 774 is not and has never been a beryllium-controlled area. In addition, there are no potential sources for beryllium contamination on the vertical exterior surfaces.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

There are no RCRA/CERCLA contaminants on the vertical exterior surfaces of Buildings 771/774.

4.4 Polychlorinated Biphenyls (PCBs)

There are no indications that the Exterior of B771/771 is contaminated with PCBs.

5 PHYSICAL HAZARDS

Physical hazards associated with the B771/774 Exterior are common to standard industrial environments, and include hazards associated with utilities. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 771/774 Exterior, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B, C, and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

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In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are presented in Attachment E. The DQA Checklists are provided in the individual survey unit packages (located in the Building 771 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation and Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm^2)
NE Electra DP6	TSA	48
Eberline SAC-4	Removable (Smears)	10
NE Electra AP6	Scans	300

7 DECOMMISSIONING WASTE TYPES

The demolition and disposal of Building 771/774 Exterior will generate a variety of wastes. Concrete that has been free-released per this PDSR can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete. This does not include the original Building 774 structure (Room 102, 103, 202, 203, and 210), areas of Room 241 that are 6' below final grade (which will remain in-situ), a small section of the 241 east exterior wall (approximately 380 ft^2, which will be disposed of as radioactive waste), and the Building 771 Annex.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Building 771/774 Exterior is classified as an RFCA Type 3 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Based upon the results of this PDS, the portions of the 771/774 Exterior that meet the unrestricted release limits specified in the site Pre-Demolition Survey Plan are ready for demolition. The PDS for the Building 771/774 Exterior was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on the B771/774 Area surfaces (refer to Attachment F, Historical Review).

Radiological contamination in excess of the PDSP Table 7-1 limits was not detected in the Building 771/774 Exterior.

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Based upon this PDSR, the Building 771/774 Exterior can be demolished and the waste managed as sanitary, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete, with the exception of the following areas: the original Building 774 structure (including Rooms 202, 203, and 210), the Annex, and a 380 ft^2 section of the east wall of Room 241, which will be packaged and disposed of as radioactive waste. Rooms 102, 103, and portions of Room 241 of Building 774, which are located six feet below the final proposed grade level, will remain *in-situ*. Rooms 102 and 103 have been filled with a concrete aggregate.

To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established.

9 REFERENCES

B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

EPA, 1994. *The Data Quality Objective Process,* EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

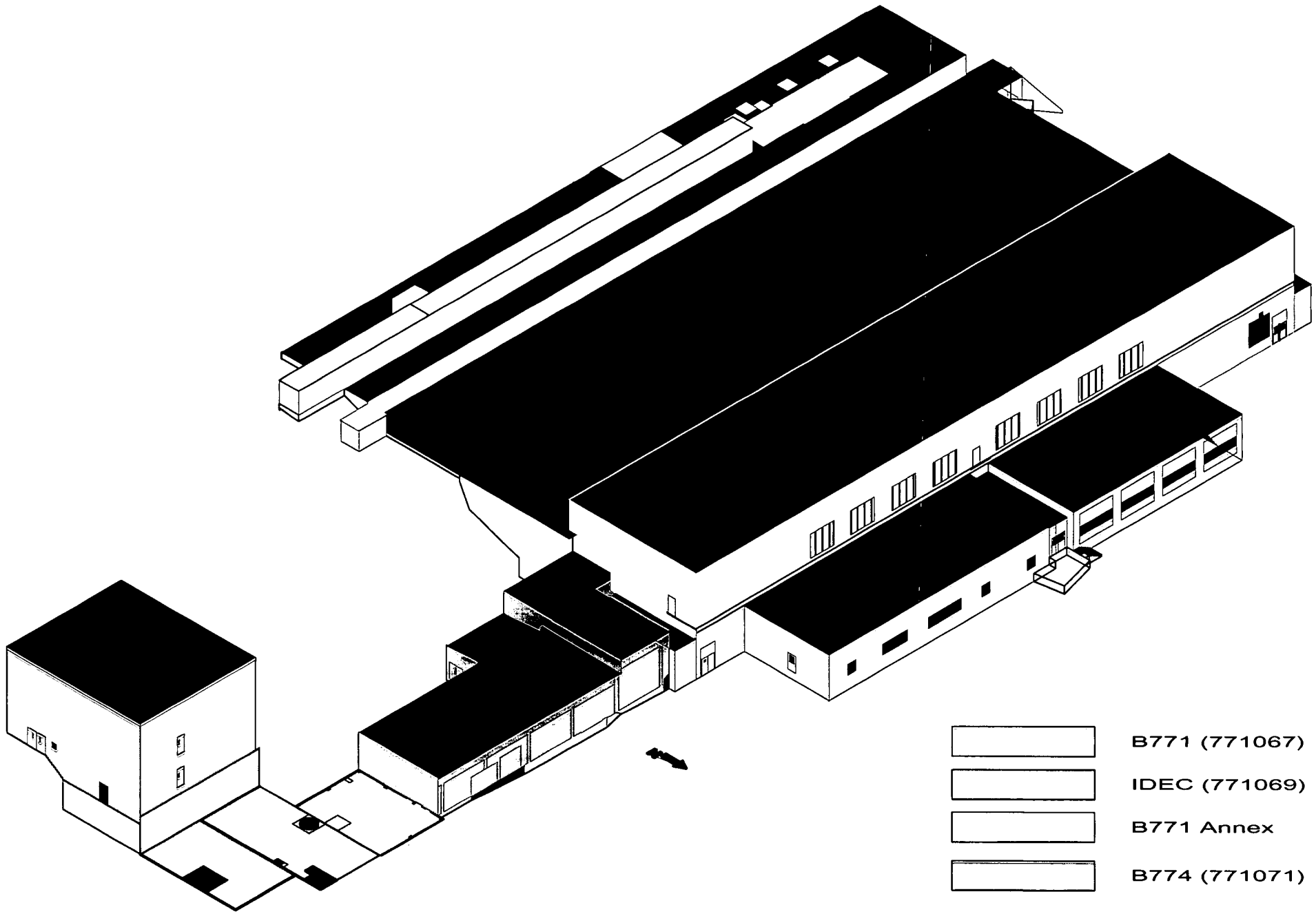
RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

ATTACHMENT A

Survey Unit Overview Map


B771 (771067)
IDEC (771069)
B771 Annex
B774 (771071)

ATTACHMENT B

Survey Unit 771067
Radiological Data Summary and Survey Map

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Number Required: 43 Number Performed: 43 Number QC Performed: 2

Alpha - Random

Maximum:	93.8 dpm/100cm²
Minimum:	-17.3 dpm/100cm²
Mean:	32.7 dpm/100cm²
Standard Deviation:	27.4
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

* Biased TSA and QC measurements not included in above statistics.

Removable Surface Activity Measurements

Number Required: 43 Number Performed: 43

Alpha - Random

Maximum:	6.7 dpm/100cm²
Minimum:	-0.9 dpm/100cm²
Mean:	0.3 dpm/100cm²
Standard Deviation:	1.7
Transuranic DCGL$_W$:	20.0 dpm/100cm²

* Biased RSA measurements not included in above statistics.

Media Sample Results

Number Required: 3 Number Collected: 3

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	1 dpm/100cm²
Minimum:	0 dpm/100cm²
Mean:	0 dpm/100cm²
Standard Deviation:	1
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Survey Area: AL | **Survey Unit:** 771067 | **Building:** 771

Description: Building 771 Proper: Exterior

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	600931	11/20/02	SAC-4	1406	NA	05/08/03	0.330	NA	10.0	NA	RSA
2	600931	11/20/02	SAC-4	845	NA	04/17/03	0.330	NA	10.0	NA	RSA
8	600931	11/19/02	Electra	1243	DP-6	05/15/03	0.216	NA	35.0	NA	TSA
9	600802	11/20/02	Electra	295	DP-6	05/15/03	0.223	NA	48.0	NA	TSA

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771067PRP-N001	1	-0.9	N/A	
771067PRP-N002	2	-0.6	N/A	
771067PRP-N003	1	-0.9	N/A	
771067PRP-N004	2	-0.6	N/A	
771067PRP-N005	1	0.6	N/A	
771067PRP-N006	2	0.9	N/A	
771067PRP-N007	1	-0.9	N/A	
771067PRP-N008	2	2.4	N/A	
771067PRP-N009	1	0.6	N/A	
771067PRP-N010	2	5.5	N/A	
771067PRP-N011	1	6.7	N/A	
771067PRP-N012	2	-0.6	N/A	
771067PRP-N013	1	-0.9	N/A	
771067PRP-N014	2	0.9	N/A	
771067PRP-N015	1	0.6	N/A	
771067PRP-N016	2	-0.6	N/A	
771067PRP-N017	1	0.6	N/A	
771067PRP-N018	2	-0.6	N/A	
771067PRP-N019	1	-0.9	N/A	
771067PRP-N020	2	-0.6	N/A	
771067PRP-N021	1	-0.9	N/A	
771067PRP-N022	2	0.9	N/A	
771067PRP-N023	1	-0.9	N/A	
771067PRP-N024	2	-0.6	N/A	
771067PRP-N025	1	0.6	N/A	
771067PRP-N026	2	-0.6	N/A	
771067PRP-N027	1	2.1	N/A	
771067PRP-N028	2	0.9	N/A	
771067PRP-N029	1	-0.9	N/A	

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771067PRP-N030	2	-0.6	N/A	
771067PRP-N031	1	-0.9	N/A	
771067PRP-N032	2	0.9	N/A	
771067PRP-N033	1	0.6	N/A	
771067PRP-N034	2	0.9	N/A	
771067PRP-N035	1	0.6	N/A	
771067PRP-N036	2	-0.6	N/A	
771067PRP-N037	1	-0.9	N/A	
771067PRP-N038	2	3.9	N/A	
771067PRP-N039	1	-0.9	N/A	
771067PRP-N040	2	-0.6	N/A	
771067PRP-N041	1	-0.9	N/A	
771067PRP-N042	2	-0.6	N/A	
771067PRP-N043	1	-0.9	N/A	

Comments: None

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771067PRP-N001	8	13.7	N/A	
771067QRP-N001	9	9.0	N/A	
771067PRP-N002	8	-17.3	N/A	
771067PRP-N003	8	16.9	N/A	
771067PRP-N004	8	78.5	N/A	
771067PRP-N005	8	29.0	N/A	
771067PRP-N006	8	44.7	N/A	
771067PRP-N007	8	19.7	N/A	
771067PRP-N008	8	66.0	N/A	
771067PRP-N009	8	10.4	N/A	
771067PRP-N010	8	10.4	N/A	
771067QRP-N010	9	50.7	N/A	
771067IRP-N011	8	0.0	N/A	
771067PRP-N012	8	4.4	N/A	
771067PRP-N013	8	29.0	N/A	
771067PRP-N014	8	4.4	N/A	
771067PRP-N015	8	72.5	N/A	
771067PRP-N016	8	19.7	N/A	
771067PRP-N017	8	29.0	N/A	
771067PRP-N018	8	26.2	N/A	
771067PRP-N019	8	1.2	N/A	
771067PRP-N020	8	13.7	N/A	
771067PRP-N021	8	4.4	N/A	
771067PRP-N022	8	93.8	N/A	
771067PRP-N023	8	93.8	N/A	
771067PRP-N024	8	19.7	N/A	
771067PRP-N025	8	35.4	N/A	

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771067PRP-N026	8	26.2	N/A	
771067PRP-N027	8	16.9	N/A	
771067PRP-N028	8	29.0	N/A	
771067PRP-N029	8	16.9	N/A	
771067PRP-N030	8	63.2	N/A	
771067PRP-N031	8	19.7	N/A	
771067PRP-N032	8	7.7	N/A	
771067PRP-N033	8	54.0	N/A	
771067PRP-N034	8	41.5	N/A	
771067PRP-N035	8	19.7	N/A	
771067PRP-N036	8	35.4	N/A	
771067PRP-N037	8	16.9	N/A	
771067PRP-N038	8	63.2	N/A	
771067PRP-N039	8	50.7	N/A	
771067PRP-N040	8	13.7	N/A	
771067PRP-N041	8	87.8	N/A	
771067PRP-N042	8	54.0	N/A	
771067PRP-N043	8	69.2	N/A	

Comments: NONE

Survey Area: AL	Survey Unit: 771067	Building: 771
Description: Building 771 Proper: Exterior		

Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
03Z1848-002.001 2 39	U234	NA	NA	0.75	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0226	0.1980			0	0	**Transuranic**
	Am241	0.0000	0.1790			0	0	0
03Z1848-003.001 3 41	U234	NA	NA	1.76	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.3590	0.1880			1	0	**Transuranic**
	Am241	0.2580	0.1940			1	0	1
03Z1848-004.001 4 42	U234	NA	NA	2.37	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	-0.0421	0.2070			0	1	**Transuranic**
	Am241	0.0642	0.1930			0	1	0

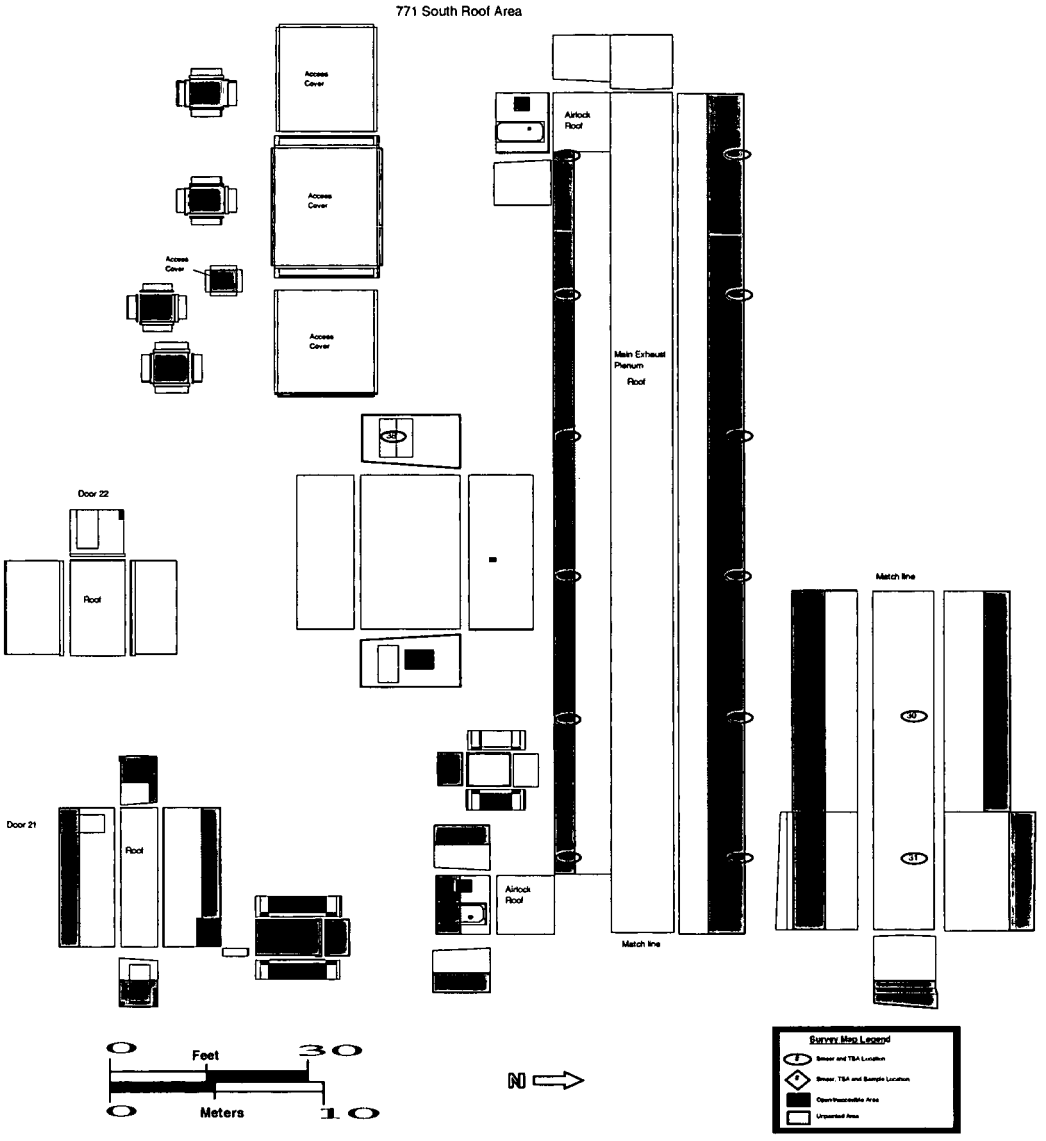
Comments: 03Z1848-001.001 was omitted from the data set because this section of the building was removed and disposed of as Low Level Radioactive Waste.

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771067** **Classification: 2**
Building: 771
Survey Unit Description: 771 Exterior

Total Floor Area: NA sq. m **Total Area: 2881 sq. m** **Grid Size: N/A**

SURVEY UNIT 771067 - MAP 1 OF 4



RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771067** **Classification: 2**
Building: 771
Survey Unit Description: 771 Exterior

Total Floor Area: NA sq. m **Total Area: 2881 sq. m** **Grid Size: N/A**

SURVEY UNIT 771067 - MAP 2 OF 4

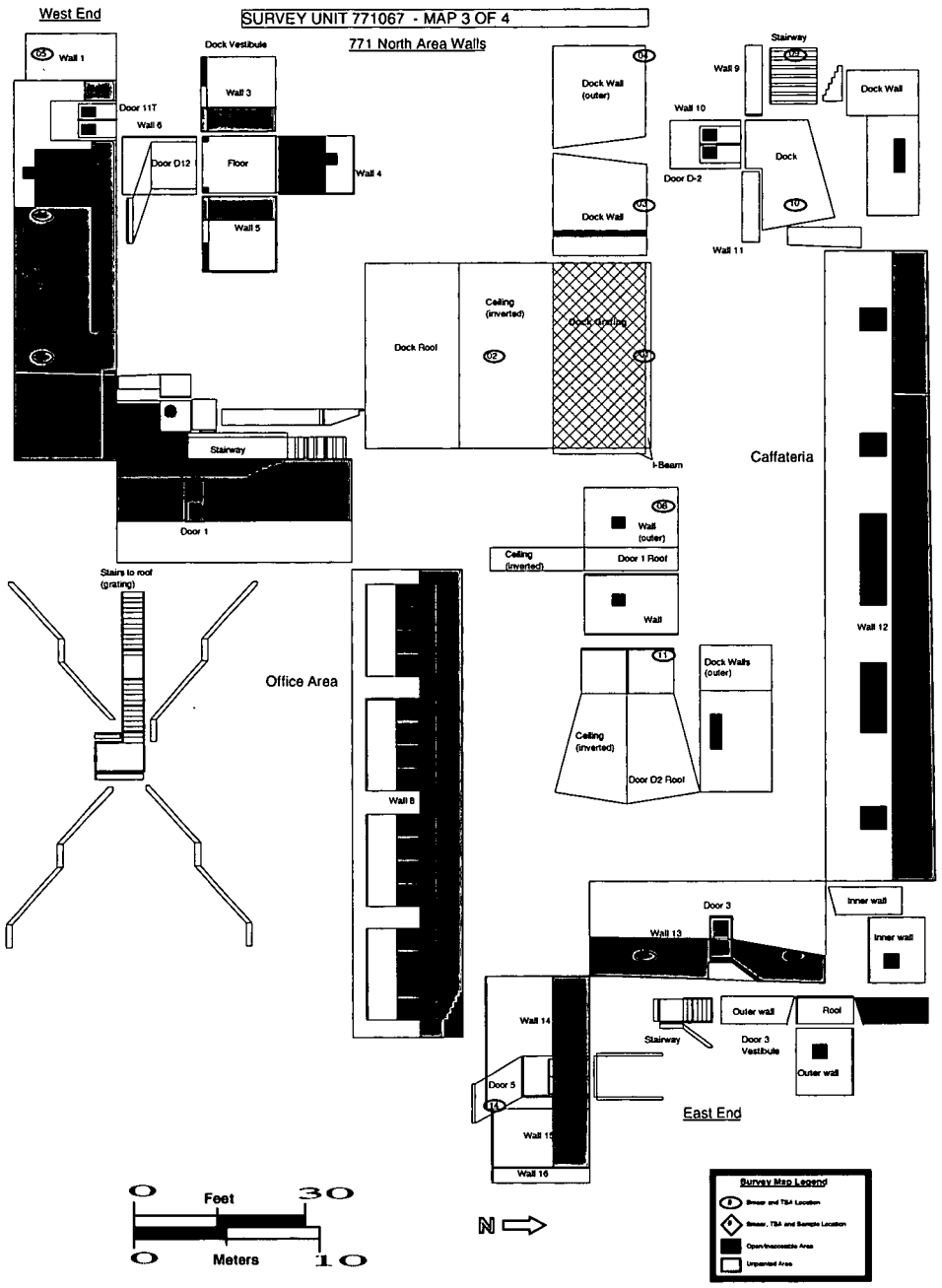
771 South Area Walls

N

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit:** 771067 **Classification:** 2
Building: 771
Survey Unit Description: 771 Exterior

Total Floor Area: NA sq. m **Total Area:** 2881 sq. m **Grid Size:** N/A

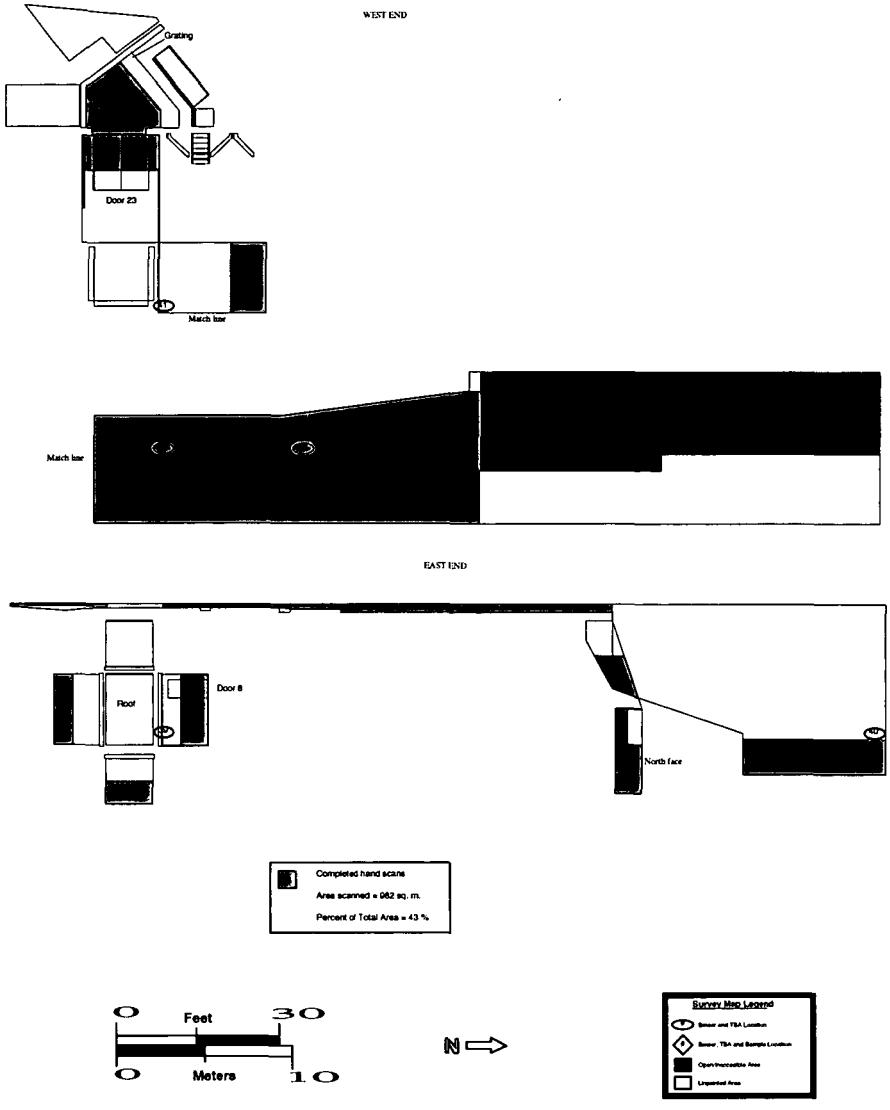


RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771067** **Classification: 2**
Building: 771
Survey Unit Description: 771 Exterior

Total Floor Area: NA sq. m **Total Area: 2881 sq. m** **Grid Size: N/A**

SURVEY UNIT 771067 - MAP 4 OF 4



ATTACHMENT C

Survey Unit 771069
Radiological Data Summary and Survey Map

Survey Area: AL	Survey Unit: 771069	Building: 771
Description: IDEC Exterior		

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Number Required: 19 Number Performed: 19 Number QC Performed: 2

Alpha - Random

Maximum:	89.7 dpm/100cm²
Minimum:	-0.4 dpm/100cm²
Mean:	38.3 dpm/100cm²
Standard Deviation:	32.0
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

* Biased TSA and QC measurements not included in above statistics.

Removable Surface Activity Measurements

Number Required: 19 Number Performed: 19

Alpha - Random

Maximum:	10.2 dpm/100cm²
Minimum:	-1.2 dpm/100cm²
Mean:	5.4 dpm/100cm²
Standard Deviation:	3.3
Transuranic DCGL$_W$:	20.0 dpm/100cm²

* Biased RSA measurements not included in above statistics.

Media Sample Results

Number Required: 3 Number Collected: 3

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	0 dpm/100cm²
Minimum:	0 dpm/100cm²
Mean:	0 dpm/100cm²
Standard Deviation:	0
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Survey Area: AL | **Survey Unit:** 771069 | **Building:** 771

Description: IDEC Exterior

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	514979	11/15/02	SAC-4	1491	NA	01/23/03	0.333	NA	10.0	NA	RSA
2	514979	11/15/02	SAC-4	1201	NA	04/02/03	0.330	NA	10.0	NA	RSA
3	514979	11/15/02	SAC-4	1160	NA	05/07/03	0.330	NA	10.0	NA	RSA
11	516635	11/13/02	Electra	1367	DP-6	01/08/03	0.222	NA	49.0	NA	TSA
12	514979	11/14/02	Electra	1367	DP-6	01/08/03	0.222	NA	48.0	NA	TSA
13	514979	11/15/02	Electra	1262	DP-6	05/15/03	0.220	NA	48.0	NA	TSA
14	600931	06/19/03	Electra	2382	DP-6	11/02/03	0.215	NA	48.0	NA	TSA

Survey Area: AL	Survey Unit: 771069	Building: 771
Description: IDEC Exterior		

Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771069PRP-N001	3	4.9	N/A	
771069PRP-N002	1	7.2	N/A	
771069PRP-N003	2	3.9	N/A	
771069PRP-N004	3	4.9	N/A	
771069PRP-N005	2	10.0	N/A	
771069PRP-N006	1	8.7	N/A	
771069PRP-N007	2	7.0	N/A	
771069PRP-N008	1	10.2	N/A	
771069PRP-N009	3	4.9	N/A	
771069PRP-N010	2	5.5	N/A	
771069PRP-N011	1	7.2	N/A	
771069PRP-N012	2	-0.6	N/A	
771069PRP-N013	3	3.3	N/A	
771069PRP-N014	1	7.2	N/A	
771069PRP-N015	2	2.4	N/A	
771069PRP-N016	3	-1.2	N/A	
771069PRP-N017	3	1.8	N/A	
771069PRP-N018	1	7.2	N/A	
771069PRP-N019	1	8.7	N/A	

Comments:

Survey Area: AL	Survey Unit: 771069	Building: 771
Description: IDEC Exterior		

Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771069IRP-N001	11	0.0	N/A	
771069QRP-N001	14	0.0	N/A	
771069IRP-N002	11	0.0	N/A	
771069QRP-N002	14	0.0	N/A	
771069IRP-N003	11	0.0	N/A	
771069IRP-N004	11	0.0	N/A	
771069PRP-N005	12	89.7	N/A	
771069PRP-N006	12	38.3	N/A	
771069PRP-N007	12	20.3	N/A	
771069PRP-N008	12	5.4	N/A	
771069PRP-N009	12	26.6	N/A	
771069PRP-N010	12	-0.4	N/A	
771069PRP-N011	12	47.3	N/A	
771069PRP-N012	11	35.6	N/A	
771069PRP-N013	13	60.2	N/A	
771069PRP-N014	13	66.1	N/A	
771069PRP-N015	13	84.3	N/A	
771069PRP-N016	13	69.3	N/A	
771069PRP-N017	11	74.3	N/A	
771069PRP-N018	11	71.6	N/A	
771069PRP-N019	13	38.9	N/A	

Comments: 771069PRP-N002, 771069QRP-N002 and 771069QRP-N001 was entered as 0.0 because of misleading data. This areas having elevated readings are not due to any DOE added isotopes but due to Po-210 which is found in galvanized metal. This material was sampled in 7 locations to reinforce this statement.

Survey Area: AL	Survey Unit: 771069	Building: 771
Description: IDEC Exterior		

Media Samples Data Sheet

Site Sample ID / Nbr Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
03D0189-002.001 2	U234	NA	NA	9.20	26.3	NA	NA	
771 IDEC	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0000	6.1454			0	74	**Transuranic**
	Am241	0.0000	0.8680			0	10	0
03D0189-003.001 3	U234	NA	NA	9.20	26.3	NA	NA	
771 IDEC	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0000	6.1454			0	74	**Transuranic**
	Am241	0.0000	0.8680			0	10	0
03D0189-001.001 4	U234	NA	NA	9.20	26.3	NA	NA	
771 IDEC	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0000	6.1454			0	74	**Transuranic**
	Am241	0.0000	0.8680			0	10	0

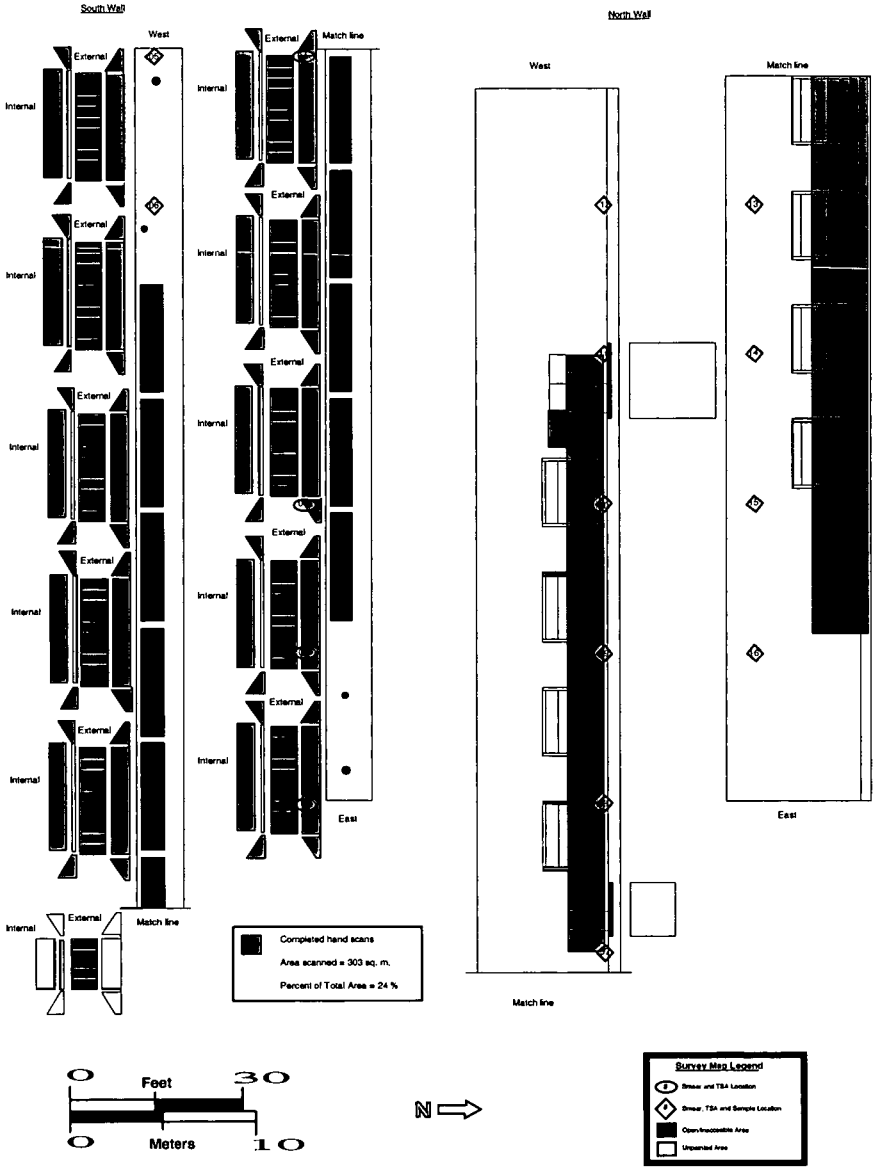
Comments: Note: These samples were analyzed as a batch sample. The batch sample was RIN 03D0189-004.001.

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771069** **Classification: 3**
Building: 771
Survey Unit Description: 771 IDEC Exterior

Total Floor Area: NA **Total Area: 1272 sq. m** **Grid Size: N/A**

SURVEY UNIT 771069 - MAP 1 OF 2



N

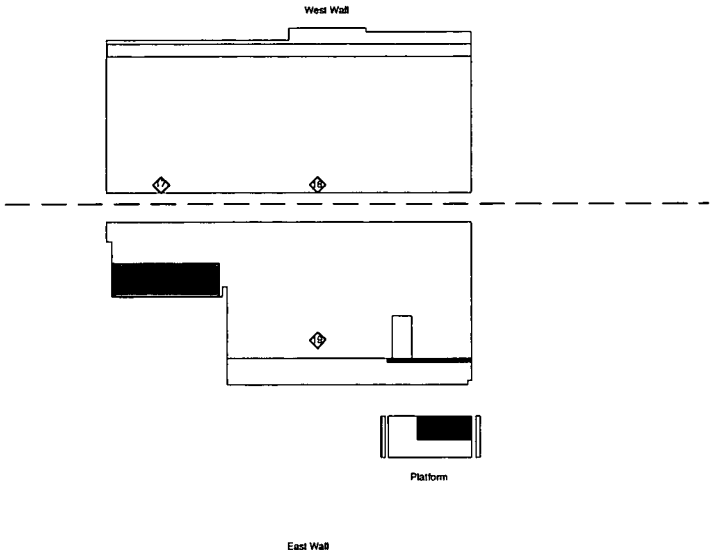
35

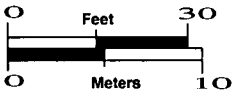
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

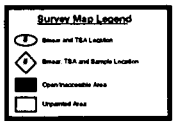
Survey Area: AL **Survey Unit: 771069** **Classification: 3**
Building: 771
Survey Unit Description: 771 IDEC Exterior

Total Floor Area: NA **Total Area: 1272 sq. m** **Grid Size: N/A**

SURVEY UNIT 771069 - MAP 2 OF 2







ATTACHMENT D

Survey Unit 771071
Radiological Data Summary and Survey Map

Survey Area: AL	Survey Unit: 771071	Building: 774
Description: B774 Exterior		

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Number Required: 15 Number Performed: 15 Number QC Performed: 2

Alpha - Random

Maximum:	58.6 dpm/100cm²
Minimum:	9.6 dpm/100cm²
Mean:	31.7 dpm/100cm²
Standard Deviation:	15.3
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

* Biased TSA and QC measurements not included in above statistics.

Removable Surface Activity Measurements

Number Required: 15 Number Performed: 15

Alpha - Random

Maximum:	3.3 dpm/100cm²
Minimum:	-1.8 dpm/100cm²
Mean:	0.1 dpm/100cm²
Standard Deviation:	1.4
Transuranic DCGL$_W$:	20.0 dpm/100cm²

* Biased RSA measurements not included in above statistics.

Media Sample Results

Number Required: 3 Number Collected: 3

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	0 dpm/100cm²
Minimum:	0 dpm/100cm²
Mean:	0 dpm/100cm²
Standard Deviation:	0
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Survey Area: AL | **Survey Unit:** 771071 | **Building:** 774

Description: B774 Exterior

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	512326	03/09/04	Electra	390	DP-6	06/02/04	0.216	NA	48.0	NA	TSA
2	515011	03/09/04	Electra	2385	DP-6	06/03/04	0.219	NA	48.0	NA	TSA
3	512326	03/09/04	SAC-4	1185	NA	04/20/04	0.330	NA	10.0	NA	RSA
4	512326	03/09/04	SAC-4	1053	NA	07/22/04	0.330	NA	10.0	NA	RSA
5	512326	03/09/04	SAC-4	820	NA	06/08/04	0.330	NA	10.0	NA	RSA
6	512326	03/09/04	SAC-4	815	NA	05/14/04	0.330	NA	10.0	NA	RSA
7	513185	03/29/04	Electra	1367	DP-6	06/17/04	0.220	NA	48.0	NA	TSA
8	514510	03/29/04	SAC-4	815	NA	08/09/04	0.330	NA	10.0	NA	RSA

Survey Area: AL	Survey Unit: 771071	Building: 774
Description: B774 Exterior		

Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771071PRP-N001	3	0.3	N/A	
771071PRP-N002	8	0.9	N/A	
771071PRP-N003	4	-1.2	N/A	
771071PRP-N004	5	1.2	N/A	
771071PRP-N005	6	-1.8	N/A	
771071PRP-N006	3	0.3	N/A	
771071PRP-N007	8	-0.6	N/A	
771071PRP-N008	4	3.3	N/A	
771071PRP-N009	5	-0.3	N/A	
771071PRP-N010	6	-0.3	N/A	
771071PRP-N011	3	1.8	N/A	
771071PRP-N012	4	0.3	N/A	
771071PRP-N013	5	-1.8	N/A	
771071PRP-N014	6	-0.3	N/A	
771071PRP-N015	3	0.3	N/A	

Comments:

Survey Area: AL	Survey Unit: 771071	Building: 774
Description: B774 Exterior		

Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771071QRP-N001	1	22.3	N/A	
771071PRP-N001	2	18.8	N/A	
771071PRP-N002	7	42.7	N/A	
771071PRP-N003	2	22.0	N/A	
771071PRP-N004	2	22.0	N/A	
771071PRP-N005	2	40.3	N/A	
771071PRP-N006	2	58.5	N/A	
771071PRP-N007	7	9.6	N/A	
771071PRP-N008	1	28.6	N/A	
771071PRP-N009	1	25.3	N/A	
771071PRP-N010	1	47.1	N/A	
771071PRP-N011	2	22.0	N/A	
771071PRP-N012	2	12.9	N/A	
771071PRP-N013	1	25.3	N/A	
771071PRP-N014	1	56.4	N/A	
771071QRP-N014	2	70.5	N/A	
771071PRP-N015	1	43.9	N/A	

Comments:

Survey Area: AL	Survey Unit: 771071	Building: 774
Description: B774 Exterior		

Media Samples Data Sheet

Site Sample ID / Nbr Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
03D0191-001.001 1 774 Exterior	U234	NA	NA	19.60	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	NA	NA			NA	NA	**Transuranic**
	Am241	0.0000	0.6700			0	17	0
03D0191-002.001 2 774 Exterior	U234	NA	NA	19.60	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	NA	NA			NA	NA	**Transuranic**
	Am241	0.0000	0.6700			0	17	0
03D0191-003.001 3 774 Exterior	U234	NA	NA	19.60	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	NA	NA			NA	NA	**Transuranic**
	Am241	0.0000	0.6700			0	17	0

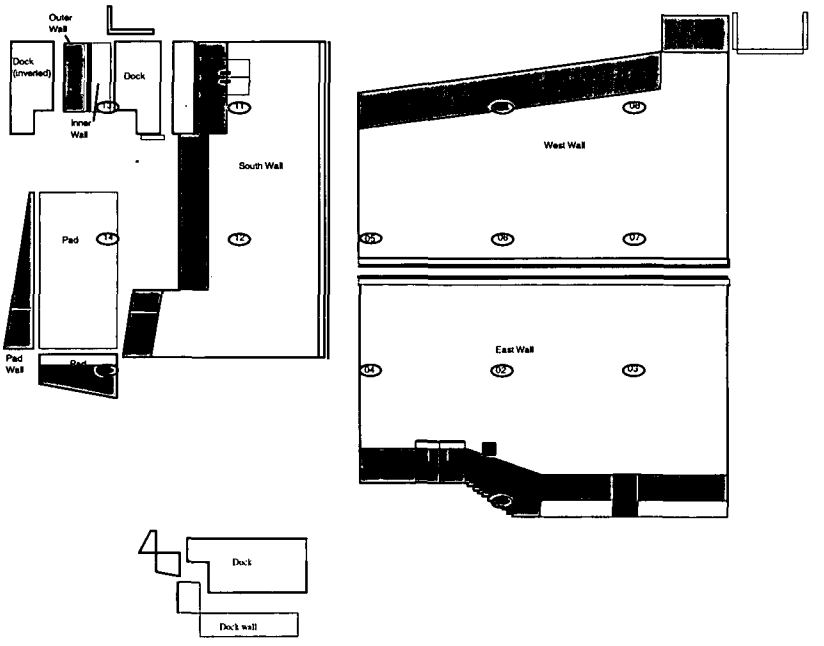
Comments: The three samples taken for the exterior of this survey package was sent off as a batch sample. This batch sample was counted as RIN Number 03D0191-004.001

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771071** **Classification: 2**
Building: 774
Survey Unit Description: 774 Exterior

Total Floor Area: N/A **Total Area: 909 sq. m** **Grid Size: 7m x 7m**

SURVEY UNIT 771071 - MAP 1 OF 1



ATTACHMENT E

Data Quality Assessment

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1. A data completeness summary for all results is given in Table E-2.

All relevant Quality records supporting this report are maintained in the B771/774 Exterior Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2).

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied site PDSP guidance. All facility contamination levels were below applicable unrestricted release levels, except as noted above. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been implemented to prevent the inadvertent introduction of further contamination into the facility. On this basis, the B771/774 Exterior meets the RLCP and PDSP DQO criteria with the confidences stated herein.

Table E-1 V&V of Radiological Surveys – B771/774 Exterior

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	**Measure**	**Frequency**	**COMMENTS**
ACCURACY	initial calibrations	80%<x<120%	≥1	Calibration using Alpha Group procedure and approved technicians.
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected Ranges <10 Cpm
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Unit 771071/771067/771069	statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ ½ $DCGL_w$ per MARSSIM guidelines.

Table E-2 Data Completeness Summary – B771/774 Exterior

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area: AL Survey Unit: 771067 B771 Exterior	43 α TSA (43 – Random/Systematic) and 43 α Smears (43 - Random/Systematic) 2 QC TSA 4 Media 43% exterior scanned	43 α TSA (43 – Random/Systematic) and 43 α Smears (43 - Random/Systematic) 2 QC TSA 4 Media 43% exterior scanned	No elevated contamination at any location; all values below PDS unrestricted release levels 1 result above action level	Transuranic DCGLs RIN Sample numbers: 03Z1848-001.001 Thru 03Z1848-004.001 1 result above action level Point 771067PRP-N011 this TSA was found to be above the action level the area was sampled and was found to be Po-210.
Radiological	Survey Area: AM Survey Unit: 771071 B774 Exterior	15 α TSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 3 Media 17% Scanned	15 α RSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 3 Media 17% Scanned	No elevated contamination at any location from DOE added isotope; all values below PDS unrestricted release levels No results above action level	Transuranic DCGLs RIN Sample number 03D01191-004.001 No results above action level

Table E-2 Data Completeness Summary – B771/774 Exterior

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area: AL Survey Unit: 771069 B771 IDEC Exterior	19 α TSA (19 – Random/Systematic) and 19 α Smears (19 - Random/Systematic) 2 QC TSA 3 Media 22% Scanned	19 α RSA (19 – Random/Systematic) and 19 α Smears (19 – Random/Systematic) 2 QC TSA 3 Media 22% Scanned	No elevated contamination at any location from DOE added isotope; all values below PDS unrestricted release levels 2 result above action level	Transuranic DCGLs RIN Sample number 03D0189-004.001 2 result above action level Points 771069PRP-N001 and N002 these TSA points were found to be above the action level these areas were sampled and was found to be Po-210. These locations were also the QA points therefore QA point 771069QRP-N001 and N002 are not included.

ATTACHMENT F

Historical Review

Building 771/774 Exterior
Historical Review
March 31, 2004

Facility ID: Buildings 771/774, Exterior (Survey Area AL)

Anticipated Facility Type (1, 2, or 3): Type 3. Based on low contamination potential, the exterior of B771/B774 is classified as a Class 3 survey unit.

Physical Description: The exterior of the 771 Building encompasses approximately 2881m^2. The primary material used in its construction is bare poured concrete with intermittent use of painted metal siding. The exterior of the 774 complex at 2087m^2 is the second largest unit in this report and its construction consists of bare poured concrete. The IDEC section of the 771 exterior contains an area of 1272m^2 and is primarily made of painted metal siding over a steel beam skeleton.

Historical Operations:
This survey unit consists of structural surfaces only. No processes occurred on the exterior of B771/B774. The most likely sources of contamination of this area include the 1957 Building 771 fire, the 1969 Building 776 fire, and other miscellaneous airborne emission sources from the site. However, environmental sampling performed to date indicates that the fires did not spread detectable contamination into the surrounding soils. Therefore, contamination would not be expected on structural exteriors.

Current Operational Status: B771 and B774 are no longer in operation.

Contaminants of Concern

Asbestos
None

Beryllium (Be)
The roofs of B771/B774 are not RFETS Beryllium (Be) Areas, based on historical and existing classifications, and historical use. Personnel interviews confirm that this area was never a Beryllium area.

Lead

None

RCRA/CERCLA Constituents
Personnel interviews indicate that RCRA storage units were never located in this area.

A visual inspection of the 771/774 exterior 771/774 Environmental Compliance/Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no additional sampling for RCRA/CERCLA constituents is required.

PCBs
Free-flowing or exposed PCBs have never been used or transferred on the exterior of 771or 774.

Radiological Contaminants
The contaminants of concern for the 771 project, including all areas of Buildings 771 and 774, are transuranic alpha-emitting radioisotopes (including Pu-238, Pu-239/240, Pu-242, and Am-241). Based on findings documented in Radiological Engineering TBD-00161, Rev. 0, alpha-only surveys assure that the unrestricted-release limits for any other isotopes that may exist in Building 771/774 will not be exceeded.

Environmental Restoration Concerns
No Individual Hazardous Substance Sites (IHSS) exist on the B771/B774 exterior surfaces.

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Building 771/774 Exterior
Historical Review
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Additional Information
None

References
(1) B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.
(2) Building 771/774 Cluster Closure Project Reconnaissance Level Characterization Report, dated August 8, 1998, Revision 2.

Further Actions
Complete the PDS process.

Prepared By: T. Fontaine / [signature] / 5-6-05
Name Signature Date

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